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SCIENCE NEWS LETTER

Vol. 53, No. 24

THE WEEKLY SUMMARY OF CURRENT SCIENCE • JUNE 12, 1948

Malarial Shrew

See Page 373

A SCIENCE SERVICE PUBLICATION

These "sound jurors" record their preferences as they listen over test circuits.

Trial by "Sound Jury"

The engineer in the foreground talks over the test circuits which the other engineer sets up on a "circuit simulator."

After Bell Laboratories engineers have designed a new talking circuit, they measure its characteristics by oscilloscopes and meters.

But a talker and a listener are part of every telephone call, and to satisfy them is the primary Bell System aim.

So, before the circuit is put into operation, a "sound jury" listens in. An actual performance test is set up with the trained ears of the jurors to supplement the meters.

As syllables, words, and sentences come in over the telephones, pencils are busy over score sheets, recording the judgment of the listeners on behalf of you and millions of other telephone users.

Targets of the transmission engineer are: your easy understanding of the talker, the naturalness of his voice, and your all-around satisfaction. To score high is one of the feats of Bell System engineering.

BELL TELEPHONE LABORATORIES

• EXPLORING AND INVENTING, DEVISING AND PERFECTING FOR CONTINUED IMPROVEMENTS AND ECONOMIES IN TELEPHONE SERVICE

MEDICINE

Hopes Dim of KR as Cure

The Russian anti-cancer serum, tested on over 1,300 mice in this country, has given negative results after three years of experimentation.

➤ WHAT seems to be the death knell for hopes of a cancer cure from the Russian KR anti-cancer serum is sounded in a report to the journal, *Science* (June 4).

The report is by Drs. Theodore S. Hauschka and Margaret Blair Goodwin, of Lankenau Hospital Institute for Cancer Research, Philadelphia. Since March, 1945, these scientists have been testing, in over 1,300 mice, the Chagas' disease germ material reported by two Russian scientists to be effective against cancer.

"In view of the almost wholly negative outcome of our experiments and those of others the elusive endotoxin of T. cruzi does not at present appear to hold out much promise for cancer therapy," they state.

T. cruzi are the trypanosomes, or germs, of Chagas' disease. According to the Russian scientists, Dr. N. G. Klyueva and her husband, Dr. Gregory Roskin, blood of animals infected with these germs contains a poison, or endotoxin, which has anti-cancer action.

The Philadelphia scientists duplicated as closely as possible the Russian techniques in preparing and using the material. But it did not have any effect on the cancers in the mice and in one set of experiments more treated mice died than untreated ones.

Shortly before his death, the late Dr. W. M. Malisoff of New York reported that he had verified the Russian results and was going to use his material for treatment of patients. The Philadelphia scientists also repeated his work, using germs he furnished, and mice implanted with cancers from the same source he used. Dr. Hauschka and associates found that in more than half the mice these cancers grew smaller without treatment, so that Dr. Malisoff's results can be considered spontaneous regressions of the cancer and not the result of the treatment.

The work of the Philadelphia scientists has been done in a joint research program with the National Cancer Institute under a grant from the Institute. Since the scientists are convinced that the Chagas' disease germs do not produce an anti-cancer material, they will stop further work along this line. But they will probably continue studies aimed at finding out why the Russian scientists thought they had anti-cancer material. There is a possibility that their results were due to chemicals from some other germs which might have been in the blood they used to prepare their endotoxin.

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BACTERIOLOGY

Penicillin Action Appears To Produce Electric Field

➤ PENICILLIN'S action against bacteria appears to create a charged electrical field in the area where it is going on.

Drs. Jean Dufrenoy and Robertson Pratt, of the University of California Medical Center in San Francisco, produce evidence that in the zone where the drug is inhibiting bacterial growth there is a positive charge, with a negative charge in the area where the growth-rate is enhanced. They have communicated their findings to the editor of the British scientific journal, *Nature* (May 29).

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AGRICULTURE

Scientific "Calf Starter" Will Add to Milk Supply

➤ SCIENTIFIC "calf starter" for dairymen is one way to increase the supply of milk and milk products for home use and for shipping, says Prof. W. T. Crandall of Cornell University's animal husbandry department.

Calf starters, or milk substitutes to be fed dry, are marketed by a number of feed companies as meal and pellets. Dairymen who use them in raising their calves can save 850 pounds of milk on each calf.

Prof. Crandall explained it this way. Only 350 pounds of whole milk is required for each calf with the calf-starter method, as compared with 1200 pounds of whole milk when no milk substitute is used.

This saving can do much to increase the supply of market milk, he pointed out. The calves also make good gains in size and feeding capacity when they get good quality hay in addition.

Calves in the Cornell University herd have been raised satisfactorily with calf starter for years.

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TECHNOLOGY

New Weaving Machine Speeds Up Cloth Output

➤ A NEW high-speed weaving machine demonstrated in Cleveland has produced cloth at 2.66 times the output of conventional machines and may be able to weave some yarns at a faster rate.

The bulky wooden shuttle is replaced by a light-weight steel gripper shuttle, and steel guides are used to keep the shuttle from touching the warp yarn. The new precision machine is in the last stages of development by The Warner & Swasey Company of Cleveland. It is based on the original design of a Swiss firm, Sulzer Brothers of Winterthur.

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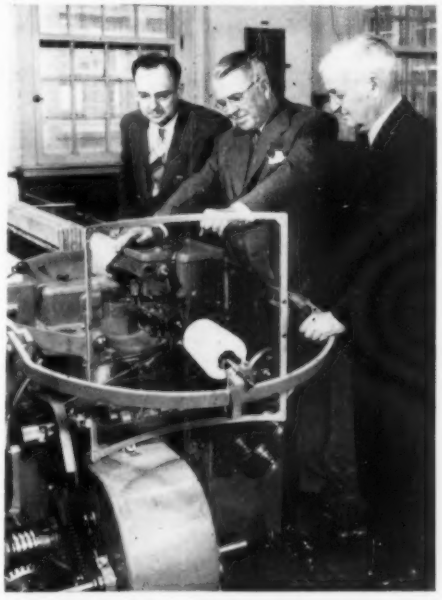

***WEAVING MACHINE**—This is a pilot model designed to produce cloth at 2.66 times the rate of conventional machines. Key figures in the program responsible for this development are (left to right): D. M. Pattison, Charles J. Stilwell and Myron S. Curtis of The Warner & Swasey Company.*

ELECTRONICS

New Symbols for Numbers

➤ A NEW set of symbols for numbers instead of the familiar 1, 2, 3, etc. has been proposed by a British scientist. His idea is to speed up the "reading" and "writing" of new high-speed electronic computing machines.

W. G. Bickley of Imperial College, London, offers a series of straight-line semaphore numerals. The new computers which can solve a mathematical problem in a fraction of a second that might require hours or days for a human computer to do must perform all the "three 'R's'," Mr. Bickley explains in a letter to the editor of the journal, *Nature*. (May 8).

These robot mathematicians might be able to read a problem and write the answer faster with a simple, new set of numerals which humans could also use easily.

In the suggested system, 5 becomes a straight vertical line, resembling the common figure 1. The symbol for one is shaped like the point of an arrow facing to the right, the sign which the mathematician uses to indicate "greater than." The figure 9 is the reverse of this. Other single-stroke or angled-line symbols are given for each of the other numbers, while zero would be a dot in the middle of the line. The new figures resemble straight lines drawn to indicate the position of the semaphore flags used by a signalman.

Mr. Bickley explains that high speed electronic "brains" seem to be faster at doing the arithmetic of a problem than they are at their input—putting the problem into the machine—and output—getting the answer out. The new code of figures might be easier for the "low-grade intelligence of the robot to recognize," he points out.

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GENERAL SCIENCE

Urge No Secret Work Plan

➤ A SCIENTIST urged that no secret research should be done under the proposed new National Science Foundation.

Dr. Hugh C. Wolfe, physicist at the City College of New York, told the House Committee on Interstate and Foreign Commerce that the Foundation should encourage free exchange of information by not undertaking projects coming under military security classification.

"The extension of security to new areas of science, particularly basic science, is a source of serious concern to nearly all scientists," Dr. Wolfe cautioned in a statement which he presented as a spokesman for the Federation of American Scientists.

He proposed that legislation establishing the Foundation be amended to provide that the new agency "not . . . give continuing support to research requiring security classification." When work under the Foundation required such a status, it would be transferred to another group under this proposal.

A bill to establish the Foundation is now in the House Committee after having passed the Senate. Last year, President Truman vetoed a measure calling for the Foundation.

The Foundation which would give peacetime, civilian support to basic research in science was supported by testimony of Prof. J. A. Reyniers, bacteriologist at the University of Notre Dame. He told the committee about his own work of rearing germ-free animals and warned that any delay in basic research multiplies future problems.

Dr. Lawrence R. Hafstad, executive secretary of the Research and Development Board, advised against limiting the Foundation to only basic research. In some cases, he explained, it might be wise for the Foundation to enter the field of development as well.

Other witnesses before the committee included Secretary of Commerce Sawyer, making his first appearance before the Commerce Committee since his appointment to the cabinet, and other representatives of business, education and science.

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PHYSIOLOGY

Incubator Eggs Need Extra Oxygen at High Altitudes

➤ MORE successful hatching of chicks and turkey poults on high-altitude ranches can be achieved by piping oxygen into the incubators, it has been discovered at the University of Wyoming.

A baffling problem of poultry-raisers in the mountain states always has been the relatively low percentage of eggs that turn out healthy baby fowl. University poultry researchers found that at 7,000 feet elevation not enough oxygen got through the eggshells to keep the developing embryos alive; the poor unhatched chicks literally smothered to death. Supplementary oxygen was the answer.

Oxygen must be supplied throughout the entire incubation period, it was learned. If it is supplied for a time and then discontinued, results are worse than if it is not given at all.

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SCIENCE SERVICE

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MEDICINE-ZOOLOGY

Shrews Aid Malaria Fight

Medical research is expected to benefit from the discovery that elephant shrews, 104 of which have been imported from Africa, are susceptible to this disease.

See Front Cover

➤ NEWEST reenforcements in science's war against malaria are 104 elephant shrews, which have just been installed at the National Zoological Park in Washington, after a fast air journey from their home on the upper Nile, in the Anglo-Egyptian Sudan. They are the size of big mice, and get their name from the long, flexible, rubbery tips on their nervous little exploratory noses, as shown on the cover of this week's SCIENCE NEWS LETTER.

Their great value to medical research lies in their susceptibility to malaria, and to the fact that they are small and not too hard to feed. Insect-eaters in their wild state, in captivity they have taken readily to a diet of oatmeal porridge, chopped hardboiled eggs and finely ground meat.

Malaria susceptibility is rare and spotty among mammals, so that the discovery that elephant shrews can have the disease marked them as desirable research material. The Navy sent a small group of scientists to Africa as part of the University of California expedition now there under the leadership of Wendell Phillips.

The animals were captured in snares by natives near the settlements of Torit and Kapota, and were brought out by a three-man team: Chief Pharmacist's Mate Deaner Lawless and Messrs. Trenten Ruebush and William Terry. The 8,500-mile air journey, with one stop at Fort Lyautey in northern Africa, did not seem to bother the shrews at all.

They were caged in pairs for the journey. Shrews are cannibalistic and had numbers of them been caged together, there would not have been as many at the end of the trip as there were at the start. But a male and female traveling together do not try to chew each other up.

First steps in research on the elephant shrews were made in the Zoo's laboratories by Dr. Clay Huff of the Naval Medical Research Institute. Dr. Huff is examining samples of the animals' blood to find the species of malaria parasites with which they may be infected. He will try to transfer these to commoner and cheaper experimental animals such as mice, rats and hamsters. An effort will also be made to get the shrews to breed in captivity, thereby obviating the need for further expensive importations from Africa.

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ORNITHOLOGY

Magnetism No Guide

➤ BIRD migrations are not guided by the earth's magnetic field, as has recently been suggested, in the opinion of Prof. G. H. Henderson of Dalhousie University at Halifax, N. S. Serving on a minesweeper in Canadian waters during the war, he had many opportunities to watch birds exposed to intense magnetic fields set up by the vessel in its search for enemy mines, and he reports that the behavior of the birds was not affected in any way.

Prof. Henderson states in *Science* (June 4): "If birds were guided in their navigation by geomagnetic phenomena, it would be expected that their behavior would be affected when they flew within several hundred yards of mine-sweepers. Yet nothing of the sort has so far been observed with such migratory birds as herring gulls and ducks or with non-migratory birds . . .

"When present, birds appeared to be supremely indifferent to magnetic fields, even at the sudden beginning of magnetic pulsing. A sweeper might pass close to a group of gulls or ducks sitting quietly on the water, yet they would completely ignore any surprise which man might provide, except for food. Again, a flight of ducks might pass over the sweep with no sign of a tailspin!"

Prof. Henderson is joined by another Canadian scientist, Dr. D. B. O. Savile of the Dominion Agricultural Department, Ottawa, in a discussion of possible guides to bird migration. Steering by the stars is possible; but there is the difficulty that birds often fly long distances when stars are hidden by dense overcast. Steering by winds will hardly do, Dr. Savile points out, because winds are variable in both direction and force. Effects of the earth's rotation on gravity as perceived by the sensitive balancing organs in birds' ears are possible—but not proven.

Dr. Savile points out that birds' homing instincts—that is, their ability to find their way back to their nests—are not necessarily connected with their sense of direction on long migratory flights. There is fair evidence that homing birds rely on recognizable landmarks; but on most migratory flights the young birds, which have never made the journey before, fly first—and they keep as true a course as their elders who follow them.

Both scientists agree that before very positive opinions about bird migrations can be put forth with much confidence it will be necessary to get far more information than we have at present. Dr. Savile suggests following migratory flights with airplanes or radar, at least for the first few hundred miles.

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BABY PENGUIN—Hiding under its mother's flipper, this new Humboldt penguin is five inches long and the first to be hatched at the National Zoological Park in Washington in ten years.

EDIBLE OILS—A Venezuelan weighs oil-rich palm nuts collected by the FAO mission to Venezuela.

AGRICULTURE

Amazon Rich in Food Oils

➤ VAST untapped sources of oils for margarine, cooking fats and soaps lie in the wild forests of the jungles of Venezuela, a mission of the Food and Agriculture Organization of the United Nations discovered in a survey made at the request of the government of the South American country.

FAO scientists estimate that if all the edible oil in the Amazon region could be harvested, it would suffice to supply the entire world.

Instead edible oils are one of the crucial shortages in the world's food supply. Even Venezuela, rich in palms, coconuts and other sources of edible oils, imports much of its requirements.

That country already cultivates oil palms, but the wild regions are rich in unharvested nuts. Part of the FAO mission's job was to advise on better methods of growing the cultivated palms and extracting the oils.

The people are quite enterprising in cultivating the plants. They are growing coconuts and African palms and are beginning to cultivate sesame, sunflowers, peanuts, castor beans and others. The mission made a special study of cultivation of the African palm. Another species is the American oil palm, close cousin to the African palm, which grows wild in large numbers from Brazil to Central America. One of the special features of the American oil palm is that the oil extracted from the fruit-pulp is very rich in vitamin A.

The jungles of the tropics were surveyed from the air. Aerial photographs of specific areas were taken, from which the palms could be recognized and accurately counted.

The mission made expeditions into the jungle by boat and jeep to identify the species and to gather sample nuts. From these specimens, scientists could estimate the annual production of the fruit per palm, the weight of the fruit, the percentage of oil in each fruit and the exact chemical content of oil in the nut. With these figures, estimates can be made on just how much oil lies in the tropical palm groves.

If the Venezuelans go ahead and tap these large resources, they must solve many problems. These include labor supply, health conditions and transportation. Machines will be needed to crack the hard shell surrounding the oil-bearing pulp. New methods of extracting the oil are being investigated.

New supplies of edible oils for a hungry world may come from today's wild jungles.

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AERONAUTICS-ENGINEERING

New Airplane Ice Detector Gives Pilot Danger Signal

➤ GREATER safety for private airplanes is promised in a new carburetor ice detector revealed by the Lindberg Instrument Company, Berkeley, Calif. When dangerous ice begins to form in the engine fuel induction system, a neon light flashes on the instrument board.

This gives the pilot ample warning in time to turn on his preheater, and thus avoid the danger of engine choking and a crash landing. The ice-choking of engines in flight is not a rare occurrence. Over one-fourth the engine failure accidents in planes during 1946 were due to icing conditions, according to the U. S. Civil Aeronautics Board. These occurred principally in the light plane field, and might have been avoided if the new device, which costs less than fifty dollars, had been available.

This Lindberg ice detector uses a so-called pick-up probe properly placed in the fuel induction system where the dangerous types of ice form. The energy required to power the ice detector is secured by electrical action from one of the spark plug leads, captured by slipping a piece of metal braid over the lead.

This energy is fed to a radio-frequency transformer which selects only the very high frequencies in the spark current and couples this energy to a balanced bridge circuit containing two condensers. One of these is a neutralizer, the other the ice probe itself. When ice forms on the pick-up probe, the circuit becomes unbalanced, and the warning flash results.

Carburetor ice can form at temperatures as high as 85 degrees Fahrenheit in clear weather, according to John Lindberg, Jr., one of the inventors of this device, and also the inventor of a well-known engine analyzer for multi-engine aircraft. The outside air temperature and moisture content are important factors, but when fuel is introduced into the airstream of aircraft induction systems, the vaporization of the fuel and other actions may cause as much as a 55 degree temperature drop.

This new ice detector has been subjected to laboratory and flight tests. Present models have been developed to use with Continental engines, widely used in private aircraft, but other models will be available soon for other engines.

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GENERAL SCIENCE

Top Scholarship Increased

Most promising young scientist with research ability in the Eighth Annual Science Talent Search will receive $2,800. Total of $11,000 in scholarships will be awarded.

➤ A HIGH SCHOOL senior will be named in 1949 as the most promising young scientist with research ability in America and will receive a scholarship of $2,800 to continue his education.

This increased top scholarship in the Eighth Annual Science Talent Search for the Westinghouse Science Scholarships was announced by Watson Davis, director of Science Service, which administers the Science Talent Search annually through Science Clubs of America.

This $2,800 Westinghouse Grand Science Scholarship is the largest ever given in the annual Science Talent Search. Thirty-nine other Westinghouse Science Scholarships ranging in size from $100 to $2,000 will also be awarded. This makes a total of $11,000 in scholarships for seniors in public, private and parochial secondary schools throughout the United States. The competition is now open and will close midnight, December 27, 1948.

Preparing for Entry

Boys and girls, planning to compete in the Eighth Annual Science Talent Search, are already beginning serious preparation of their entries. They must take a three-hour science aptitude examination in their home school, submit scholastic records and recommendations and write an essay of about 1,000 words on "My Scientific Project." The latter requirement will take up much of the leisure time of thousands of 'teen agers this summer as they plan and carry through their experiments and research in libraries, workshops, laboratories and out of doors. Since projects may cover any phase of science they will range through the whole gamut of science from aeronautics to zoology.

Approximately 16,000 high school seniors are expected to enter the Eighth Annual Science Talent Search. About 3,500 will complete the rigid requirements. From these, 300 will be selected by the judges and named for Honorable Mention. All will be recommended to the colleges, universities or technical schools of their choice and are assured offers of financial assistance for further study from institutions seeking students of outstanding science ability.

The top 40 boys and girls will be invited to Washington, D. C. for the five-day Science Talent Institute next spring. They will meet and talk with nationally known scientists, visit places of scientific interest and learn of new developments in science. At the end of the five days the judges will announce the winners of Westinghouse Science Scholarships ranging from $100 to $2,000 and will name the best young scientist in the United States to receive the Westinghouse Grand Science Scholarship of $2,800. The 40 winners may use their Westinghouse Scholarships at any college, university or technical school they choose.

States Hold Competitions

High school seniors in some states will have a double chance to win scholarships through state Science Talent Searches run concurrently with the national competition and by special arrangement between Academies of Science and Science Clubs of America. Eleven states carried out this plan in 1948 and two more will be added for the Eighth Annual Science Talent Search. States which now hold competitions are Alabama, Georgia, Illinois, Indiana, Iowa, Louisiana, Minnesota, Montana, Pennsylvania, Tennessee, and Virginia. For the Eighth Science Talent Search, Michigan and Wisconsin will also participate.

The judges of the Science Talent Search are: Dr. Harlow Shapley, director of the Harvard College Observatory and president of Science Service; Dr. Rex E. Buxton, Washington psychiatrist; Dr. Harold A. Edgerton, vice president of Richardson, Bellows, Henry & Co.; and Dr. Steuart H. Britt, manager of Research and Merchandising, McCann-Erickson, Inc. The latter two have designed the science aptitude examination for the annual Science Talent Searches.

The Science Talent Search is conducted by Science Clubs of America, administered by Science Service. It is made financially possible by the Westinghouse Educational Foundation of the Westinghouse Electric Corporation.

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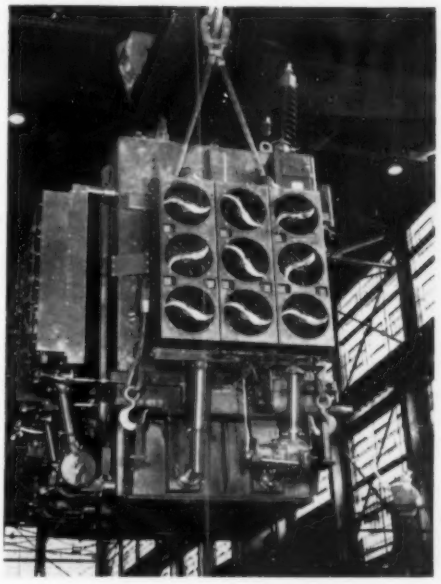

GIANT TRANSFORMER — Rated at 110,000 kilovolt-amperes, this powerful machine can handle enough power to fill all the electrical needs of an average city of 200,000 persons.

ELECTRONICS

New 140-Ton Transformer Will Be in Operation Soon

➤ A GIANT electrical transformer, claimed to be the most powerful ever built in this country and capable of turning out 150,000 horsepower of electrical energy, will soon be at work in a steam generating station of the Buffalo Niagara Electric corporation, it was revealed.

The transformer, which weighs 142 tons, was built by Westinghouse Electric Corporation, and is featured by its so-called form-fit tank design. This new type of design decreases the weight by about 20% of what would be necessary in older designs. It is rectangular in shape, and closely fits the core and coil assembly.

The giant will be used to take power at 13,200 volts and build up this voltage to 115,000 volts to be fed into the systems transmission network. The great heat generated in the core and coils will be removed by an oil-cooling system in which the oil itself is cooled by circulating air forced through the radiators by propeller-like fans.

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The *Caddo Indian* linguistic stock was probably the most used in what is now Oklahoma when white men first visited the region.

MEDICINE

Polio Fighters Are Being Mobilized for Outbreak

➤ POLIO fighters all over the country are being mobilized now in preparation for the usual summer outbreak of this crippling childhood disease.

In a series of 300 "grass roots" conferences, public health and hospital officials and other professional personnel from each community will be brought up to date on latest methods for fighting the disease. From two to a dozen conferences will be held in each state. The conferences are sponsored by the National Foundation for Infantile Paralysis.

It is too early to say yet whether there will be a big epidemic of the disease this summer. And there is no specific cure for it, nor any way of preventing polio epidemics, Basil O'Connor, president of the National Foundation for Infantile Paralysis, pointed out. But, he said, "we have learned that early diagnosis and prompt modern hospitalization can do much to halt the ravages of this crippling disease."

The preparedness meetings are being planned so that hospital beds, special equipment and trained personnel will be available for emergencies and so that health and medical authorities will know where to get nurses and physical therapists and about the National Foundation's epidemic aid teams and emergency equipment pools.

For the first time, Mr. O'Connor said, pools of equipment such as respirators (iron lungs) and hot pack machines will be strategically located at San Antonio, Tex.; Atlanta, Ga.; Boston; Columbus, Ohio; and Denver.

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FORESTRY

Baldness Attacks Young Evergreens in Lake States

➤ BALDNESS is afflicting small evergreens in northern states. Fortunately, however, it is unlike human baldness in that it is only temporary, and is due to a spell of unfavorable weather last year, rather than to anything inborn. The condition has been investigated by Dr. Henry Hansen of the University of Minnesota forestry department.

Last October there was severe drought in the region, followed by a sudden snow and sleet storm early in November. This, states Dr. Hansen, prevented the trees from hardening their tissues as they ordinarily do in autumn. The sudden drop in temperature caught their needles unprepared.

In most cases, he explains, damage is confined largely to the needles grown in 1947, which have browned and dropped off. Now that new needles are growing, the trees' appearance has improved somewhat, although the gaps on the twigs behind the new growth will keep them looking a bit ragged for another year or two.

"Nothing can be done to remedy the condition, other than let nature take its course," Dr. Hansen states. "Spraying will not help and pruning is not recommended."

Damage is confined largely to nonnative trees such as Scotch pine, Norway spruce and Oriental arbor-vitae. Trees belonging to the West, including Douglas fir, Colorado blue spruce, concolor fir and ponderosa pine, have also suffered. Trees native to the northern Great Lakes region, such as jack pine, Norway pine, white pine and white spruce, had least damage.

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GENERAL SCIENCE

Patent Applications Filed By U. S. Government Abroad

➤ OUTSTANDING American wartime developments in radar and electronics are included in a new list of patent applications now filed in foreign countries to protect American interests. They are filed under the foreign patent protection program operated by the Office of Technical Services, U. S. Department of Commerce.

The new list, the fourth to be issued, contains 70 cases filed in Great Britain by the Federal government on its own behalf, and are now being opened for "follow-up" by private firms. Sixty-one of these have never been brought to public attention before. They range from landing aids for planes to developments in ultra-high-frequency circuits and antennas.

Licenses under any foreign patents received for these federal-owned inventions would be available to American nationals on a royalty-free, non-exclusive basis. Complete information, including an opportunity to examine the specifications of all foreign patent applications, are available in the Commerce Department building, Washington.

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IN SCIENCE

CHEMISTRY

Radioactive Bromine Used In New Local Anesthetic

➤ RADIOACTIVE bromine is used in preparing a new local anesthetic, dibromo procaine, Dr. Frank Howarth of the Victoria University of Manchester announces in the British journal, *Nature* (May 29). The radioactive bromine was of British origin, made on the cyclotrons of Liverpool and Cambridge Universities.

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ARCHAEOLOGY

Age Discoveries Made by U. S. Expedition

➤ THE recovery of two stone age skeletons and tools from the west side of Lake Rudolf in Turkana Province is reported by the University of California African Expedition party in Kenya.

The skeletons were excavated under the direction of Prof. P. E. P. Deraniyagala, director of the National Museums of Ceylon and a member of the expedition. He said no skeletons previously have been found in this area, and added that the findings may be helpful in determining the nature of the early cultures here.

The first skeleton was found in a stone mound, 300 feet above the present level of the lake, which had a sandy core under the surface of the stones. The skeleton was found in the sandy core. While no tools were found with the skeleton, because the surface of the ground at the time of burial was a foot higher than it is at present there is little doubt of its antiquity.

Prof. Deraniyagala said stone implements are scattered abundantly around the area of the burials, and these may belong to a culture equivalent to the Neolithic of North Africa and Europe.

Stone flakes, which may have been contained in a skin bag long since rotted away, were found close to the second skeleton. This skeleton, found in a different locality, may be older than the first, judging from the stone tools, which may correspond to the mesolithic of Europe.

Science News Letter, June 12, 1948

NCE FIELDS

GENETICS

"Bleeder's Disease" Can Occur in Puppies

➤ HEREDITARY bleeding, or hemophilia, can occur in dogs as well as in human beings. When it does occur it is sex-linked, that is, it is found only in males, as is also the case with human hemophilia. And, as in human beings, the luckless male offspring inherit the disease not from the father but from the mother.

The unhappy lives and early deaths of 17 hemophiliac puppies have been studied by three Cornell University scientists, Drs. F. B. Hutt, C. G. Rickard and R. A. Field. They all belonged to the same owner and had the same ancestry. None lived to be more than seven months old.

Fatal or crippling bleeding could be started by the slightest accidents: tumbling about in play, or being gently picked up by the owner. Such bruise-bleeding was usually internal, producing masses of blocked-up blood which in turn often caused disabling paralysis. One puppy, in cutting a tooth, started such a hemorrhage from its gums that it had to be killed.

A search of the records has disclosed only two previous cases of canine hemophilia; in those the puppies also died young. The only other species known to produce bleeder offspring, aside from man, has been the pig.

A detailed account by the Cornell scientists appears in the *Journal of Heredity* (Jan.).

Science News Letter, June 12, 1948

GENERAL SCIENCE

Aid Program Could Also Restore World Science

➤ ONLY one percent of the total investment suggested for this country's contribution to world economic recovery would restore science in foreign countries to prewar levels, a report of a committee of the National Research Council has estimated.

With approximately $80,000,000 needed to replace war-lost scientific apparatus alone, the total needed to restore science abroad to its former level was calculated at between 150 and 200 million dollars. The report was made by Dr. W. A. Wildhack, physicist at the National Bureau of Standards and chairman of the Research Council's Committee on Scientific Equipment.

"It is to be hoped that the officials charged with the formulation and administration of our program of foreign aid will see that an appropriate portion of funds and materials are made available specifically for this purpose," the report declared.

Pointing out that science is "uniquely international," the report said that "no other phase of reconstruction will more effectively lay the groundwork for a wider cooperation and understanding among peoples and nations."

Science News Letter, June 12, 1948

INVENTION

Patent Issued on Fender Straightener

➤ A MACHINE for straightening dented fenders without detaching them from the car has been patented by John M. Johnson and Bernard P. Leaf of Lindsborg, Kans. It is based on a strong I-beam that can be securely anchored to the frame of the car with a chain. At one end of the beam is a lever with a curved dent-removing tool at its free end. Force is applied to this lever by means of a hydraulic cylinder and piston, until the fender has been restored to its original shape.

U. S. patent 2,442,604 has been issued on this device.

Science News Letter, June 12, 1948

INVENTION

Radioactive Materials Incorporated in Glass

➤ FOR convenience of handling radium and other radioactive materials in research and industrial applications, Solomon Rosenblum of Princeton, N. J., incorporates it in glass. The radioactive material is laid on the surface of a glass plate, sandwiched between two metallic plates. An electric current simultaneously heats the glass (which increases its conductivity) and incorporates the material into its substance. After cooling, the glass is ready for use as a source of radiations and as an air ionizer.

Patent 2,442,617, granted on this invention, has been assigned to the Canadian Radium and Uranium Corporation.

Science News Letter, June 12, 1948

ELECTRONICS-ENGINEERING

Magnetization Measured From Small Metal Sample

➤ THE magnetic performance of a metal after becoming a part of finished electrical equipment can be determined accurately beforehand from a small sample of the material by means of a new device revealed by the General Electric Company.

Sensitive enough to record minute quality variations between samples of the same metal, the device tests thingage, magnetic metals for energy losses when subjected to magnetization, and also measures the ease with which the metal may be magnetized. It enables engineers to predict very closely the properties of magnetic materials in motors, generators, transformers and other equipment.

This electrical instrument, with dial-operated measuring devices, will be known technically as the "A-C Permeability and Core Loss Equipment." It can be operated by a relatively untrained person. A number, built in Schenectady, N. Y., are now in use in the steel and electrical industries.

Science News Letter, June 12, 1948

BIOCHEMISTRY

Blood Proteins To Be Kept In New, Special Museum

➤ RESEARCHERS on the proteins of the blood and other body tissues will presently be able to conduct studies in the comparative chemistry of these compounds from many different kinds of animals, at a new, special serological museum now being assembled at Rutgers University. It is an outgrowth of studies in systematic serology which have been conducted in the department of zoology during the past 23 years by Prof. Alan Boyden and his students.

The museum already has blood protein samples, from hundreds of species of animals, contributed by many other institutions. It is expected that more will be received in the near future.

The Rutgers museum is unique among places where zoology is studied. Typically, museums keep only the "innermost insides and the outermost outsides" of animals—that is, their skeletons and their skins, which are relatively easy to prepare and preserve. Here, at least the chemical compounds that keep their life-processes going will be preserved for comparative research.

Science News Letter, June 12, 1948

CHEMISTRY

Nylon Has Many New Uses

Tough, versatile plastic has been found to have wool-like qualities adaptable to rugs, socks and sweaters. Felt, velvet and upholstery fabrics can also be made of nylon.

By MARTHA G. MORROW

➤ NYLON, famous as the glamour thread that makes stockings more sheer than silk, is proving itself a tough plastic adapted to many new uses. Don't be surprised if you find:

Golf club heads with a nylon protective coating.

Gears and bearings of nylon in adding machines and electric shavers.

Wrist watches with straps made of it.

Nylon heads on soft impact hammers used in metal work.

Harps and guitars strung with nylon.

The fiber is proving its versatility by acquiring wool-like qualities. Thick, serviceable rugs are made of nylon, as are warm, quick-drying men's socks and soft, woolly sweaters. Felt, velvet and upholstery fabrics can be made entirely of nylon, or of nylon in combination with other fibers.

Nylon in Short Lengths

These new textiles are possible because nylon is being produced in short lengths. The continuous filament is given a permanent wave, then cut into lengths of a few inches so it can be handled like wool or cotton.

The name nylon is a generic term used to designate not one compound but a whole family of related compounds. These nylons are similar in chemical structure, but may be made in different degrees of toughness, hardness, flexibility and color. The formula used to produce dull nylon yarn, for example, is different from that used in making nylon for plastic cups and faucet washers.

A nylon molecule contains atoms of hydrogen, nitrogen, oxygen and carbon. One important type of nylon is made by the union of two chemical compounds with the involved names of hexamethylene diamine and adipic acid.

The diamine is made from coal (coke), air and water; from cyclohexane, a petroleum product; or from furfural, which comes from such farm by-products as corncobs and oat hulls. Adipic acid is made either from coke, air and water, or from petroleum.

The Du Pont company neither makes stockings nor forms plastic articles. They manufacture nylon yarn for stockings and the material from which plastic fabricators make such things as nylon combs and gaskets. Each pair of stockings, for instance, contains only about 10 cents worth of nylon.

Nylon salt, the starting point for either hosiery or plastics, is dissolved in water to make it easier to ship. Upon reaching the spinning plant, the solution is heated to evaporate the water. When a certain concentration is reached, it is heated in an autoclave, a kind of giant pressure cooker. Here heat links the relatively small nylon salt molecules into giant ones.

This process, carefully controlled as to temperature and duration, gives nylon a molecular structure somewhat similar to wool and silk.

The hot, syrupy nylon is next allowed to flow out onto the broad rim of a large, slowly revolving wheel. Here a shower of water cools and hardens the nylon. The white ribbon is dried and chopped into flakes.

If the nylon is to become yarn, the translucent flakes from various batches are blended and melted. The liquid nylon is pumped out through tiny holes in a spinneret, a metal disc about the size of a silver dollar and as thick. To insure a filament of even diameter, the molten nylon is made to flow uniformly. Through each of these holes comes thousands of feet of thread each minute.

Formula Varied Slightly

If the material is destined to be molded like a plastic, the ivory flakes are thoroughly dried and ground up into nylon molding powder compounds. The formula may be varied slightly, depending upon the finished article.

Nylon is a thermoplastic, so can be reheated and reshaped a number of times. It does not soften until the temperature goes much higher than that at which other thermoplastics soften—well above 300 degrees Fahrenheit.

The finished article, on the other hand, can hold its shape at relatively

HANKS OF NYLON—These will be used for bristles in tooth, hair and industrial brushes. They are inspected as they are tied up in preparation to being cut into bristle lengths.

NYLON FLAKES—This shows them being fed into the hopper of a spinning machine where the flakes are melted and extruded into filaments.

high temperatures. Drinking glasses and nursing bottle funnels of nylon can be sterilized by steam without harm.

Melted nylon flows about as readily as light lubricating oil. Being so fluid, the plastic can be molded satisfactorily into articles of complicated shape and delicate structure. Nylon insulated wire played an important part during the war in keeping communications open on battle fields.

Sheets of the plastic, useful in machining a small number of pieces, can be made either by squirting out liquid nylon in sheet form or by slicing pieces of the required thickness from a nylon block. Strips of this sheet, like the yarn, can be stretched to several times their original length. Rods of various diameters permit samples for new applications to be machined and tested prior to the purchase of expensive molding equipment.

Bristles for brushes are made from thick strands of nylon. For hairbrushes and toothbrushes, the nylon bristle is of uniform diameter. A large number of long strands, tied together, are cut simultaneously into short lengths. Bundles of these are later fed into automatic machines that give tooth and hair brushes their bristles.

Bristles for paint brushes are more difficult to make. They must be tapered so the brush will flex properly and spread the paint well. Molten strands of nylon, coming from a spinneret with fairly large holes, are pulled away at a carefully controlled varying rate. By pulling now faster, now slower, the diameter of the strand is alternately decreased and increased.

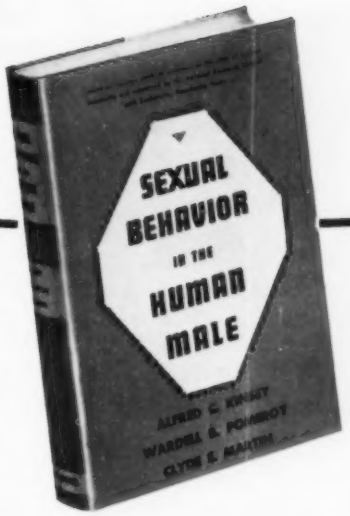
Nylon textiles being made today in continuous forms include both the single or monofilament strand and a number of strands twisted together, called multifilament.

Multifilament Yarns

Multifilament yarns are made in both standard and high strength. They range in size from 20 to 210 denier (450 meters of one-denier yarn by definition weighs five centigrams). Single filament yarns are made in 15 denier and, for super-sheer stockings, have been produced experimentally as fine as 10 denier.

Only within the last year has nylon become available in cut-to-length, staple form. After being drawn to several times their original length to orient the molecular structure and increase the strength and elasticity, the strands are crimped by moist heat and pressure, and cut into short pieces, called staple. Thus nylon can be used in combination with other short fibers. When used alone, in the form of staple, it produces a thick, wool-like fabric.

Filament deniers of nylon staple range from 1½ to 15. A 15-denier yarn is about three times as fine as a human hair



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Do You Know?

Cotton probably leads all the cultivated crops in attracting a great variety of insect enemies; more than 100 species attack the cotton crop in one way or another.

One type of *seismograph,* an instrument used to detect and record earthquake vibrations, magnifies ground motion 100,000 times; weak quakes thousands of miles away are picked up by it.

Following the two great *earthquakes* in 1906, in California and Colombia, a world-wide interest resulted which is responsible for the establishment of many new seismograph stations to receive and record earth motions.

There are four basic *odors* classified by scientists as fragrance, acid, burnt and caprylic; caprylic comes from a Latin word meaning goat and applies to all animal odors with the best known example perhaps that of a wet dog.

Bridge Checks Temperature For Vapor Pressure Studies

Precise temperature measurement is an important part of vapor pressure studies at Bureau of Mines, Bartlesville, Okla. Samples are immersed in a constant temperature bath during test, and a Mueller Bridge gives exact temperature indications.

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and contains approximately 300,000 yards of yarn to the pound.

Stockings and socks regain their original shape when washed because they have been permanently "set" with steam or very hot water. Once given a desired shape or form, they hold this shape permanently.

Nylon was first introduced to the public about 10 years ago. Twenty years ago the late Dr. W. E. Carothers, its discoverer, little dreamed that his research would lead to a material versatile enough to be used both as a plastic and as a synthetic textile fiber.

Nylon made its first public appearance as a toothbrush bristle. It established its popularity as yarn for sheer, quick-drying stockings. During the war it was so much in demand for military use that for more than three years no nylon was available commercially, except possibly in toothbrush bristles.

Today nylon is used in tire cord and laundry nets, garden hose and work gloves, sailcloths and trolley cords. It is beginning to appear in self-locking nuts and hypodermic needles, in phonograph needles and lawn sprinklers. Still an experimental product, nylon's usefulness is just beginning to be explored.

Science News Letter, June 12, 1948

ENTOMOLOGY

Test DDT in Wind Tunnel

➤ MOSQUITOES in a wind tunnel are the newest means for testing the effectiveness of DDT in aerosols or fogs, such as are used for the large-scale "depesting" of summer resorts, athletic stadiums and the like.

The work is being done as a joint research project at the Beltsville, Md., experiment station of the U. S. Department of Agriculture, near Washington. First results are reported in the *Journal of the Washington Academy of Sciences* (Nov. 15, 1947).

The wind tunnel is small, as compared with those used in aviation research: only a foot square in cross section and 32 feet long. About midway of its length a wire cage containing the victim mosquitoes can be inserted. Air speeds are low, simulating normal out-of-door conditions: they ranged from two to 16 miles an hour in the present experiments.

DDT fog was released by a standard method, to give particles of controlled diameters, from one to twenty microns —that is, from droplets about the size of the smallest known bacteria up to specks just barely visible to the naked eye. Mosquitoes in batches were bombarded with particles of all sizes, at the four velocities used. Results were measured in terms of percentages of dead mosquitoes.

In general, it was found that better kills were obtained with the larger DDT-fog particles, and that higher air velocities were more effective than lower ones. It was even possible to plot the results as ballistic curves. The experiments are still being carried on.

Earliest results, just reported, were obtained in a joint research program shared by the U. S. Bureau of Entomology and Plant Quarantine and the Central Aerosol Laboratory of Columbia University, supported by OSRD and NDRC funds. Workers were Drs. Randall Latta, Lauren D. Anderson, E. E. Rogers, V. K. LaMer, S. Hochberg, H. Lauterbach and I. Johnson.

Science News Letter, June 12, 1948

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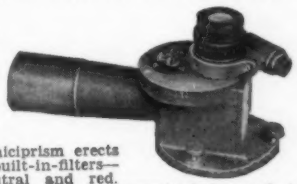

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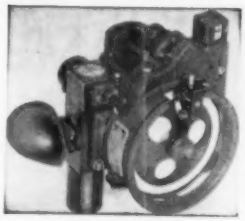

These Army Air Forces Bubble Sextants cost the Govt. about $125.-00 each. A real bargain at our price of $12.50! Included with Bubble Sextant shipment is wooden Carrying Case, 5 spare waxed paper discs, flashlight with rheostat for night use (uses ordinary flashlight cells—not furnished) aux. 2-power Galilean Telescope, Allen wrench, 1 spare marking point. Wartime used. **BUT COMPLETELY REPAIRED, COLLIMATED AND PUT IN GOOD WORKING ORDER.** Light bulb has been tested—Bubble is in working condition. Because of wartime use, we make this guarantee: If not satisfied that Sextant is exactly as represented, return within 10 days and money will be refunded. Full directions for use accompany each shipment.

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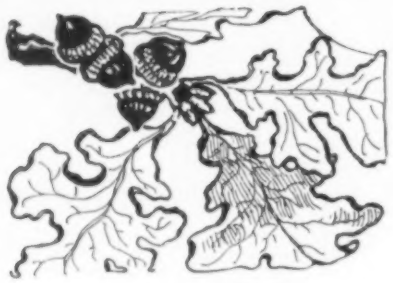
AGRONOMY

NATURE RAMBLINGS
by Frank Thone



Food from Trees

➤ PRACTICALLY all of our staple food crops are either annuals, biennials or perennials with a very brief life cycle. All of our grains start and finish their lives in the same growing season, with the exception of small-grain crops sown in the fall, which are thus semi-biennials. Potatoes, both white and sweet, are potentially perennials, but for cropping purposes we treat them as annuals. Carrots, parsnips and similar root vegetables are biennials, but good for food only during their first season.

All this means that the greater part of our food-producing areas are kept in a state of constant instability. To be planted every year, the soil has to be plowed and otherwise disturbed every year. The degree to which erosion is wasting our plowlands has everyone alarmed.

A large part of the cultivated land in the world was originally forested, and much of it should be growing trees now, but for the necessity of providing larger quantities of food per acre than trees will produce. Food-bearing trees produce mainly fruits and nuts, which are commonly used as food accessories rather than as main courses. Three outstanding exceptions are the olive, which is a dietary mainstay in Mediterranean lands; the date, which is the bread of the desert; and the coconut, which makes life possible in many tropic lands which would otherwise be unpopulated.

What we really need, for our erosion-menaced temperate-zone lands, are some highly productive tree crops of this kind. What they might be is hard now to imagine, so thoroughly tied to the one-year cropping method have we become. The sparser populations of forested lands where life is still lived at a pre-agricultural level do depend to some extent on tree foods—acorns, pinon nuts and the like, often shelled and ground into meal for boiling or baking.

There is a serious drawback to dependence on tree crops for one's principal food supply. Many trees produce only one good crop in two or more years; primitive peoples depending on them alternate between feast and famine. However, if we could find a tree that would supply us with the equivalent of bread or potatoes, we might now be able to overcome this irregularity by intensive application of fertilizer around the roots, or spraying with growth-control chemicals. The main problem still is to find the right tree.

Science News Letter, June 12, 1948

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In this problem in addition, each letter stands for a numeral. Same letters are always the same numerals. Can you solve it? It is problem number 40 in MATH IS FUN by Joseph Degrazia—a book chock full of intriguing puzzles and brain-teasers.

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ZOOLOGY

Rats Are Poor Emigrants

If forcibly introduced into another rat community, they either tried to return to their old haunts or died off. Strangers fared worse than "natives" in death rate.

➤ RATS, despite their seeming boldness, do not make very successful emigrants. They are stay-at-home conservatives, and if they are forcibly introduced into an already established rat community they do not fare too well. Experiments in rodent sociology leading to these conclusions were reported in the *Journal of Wildlife Management* (April) by Dr. John B. Calhoun of the Johns Hopkins University, Baltimore.

A considerable number of rats, marked for subsequent identification, were released in the yards of city blocks where they were "aliens." Previous studies had already established the fact that a city block is a natural "country" for its rat inhabitants, with streets and clear alleys as recognized frontiers. These "alien" rats began to migrate at once, and subsequent trappings and pick-ups of dead animals traced their movements.

When the "aliens" came from an adjoining block, fully half of the forcibly removed rats found their way home again. Even when they came from farther away, many of them would leave the strange new neighborhood. On the other hand, the "native" rats stuck to their home territory, despite disturbances in the population balance caused by the arrival of the strangers.

Death rates among native and alien rats went up when the rat population was thus artificially increased. But here again the strangers had the worst of it, for their death rate was three times that of the natives.

When the rat population of a city block is reduced by poisoning or trapping, it comes back to its original level at a fairly even rate, other studies reveal. If the kill is between 50% and 90%, the comeback rate is about four percent a month. If the kill is much lighter or much heavier, the comeback rate is slower.

The study was made by Drs. John T. Emlen, Jr., Allen W. Stokes and Charles P. Winsor, of the Johns Hopkins School of Hygiene and Public Health. They made careful counts of the visible rat populations in 34 densely-built city blocks, with the cooperation of the residents. Then they decimated the populations with ANTU, and continued their close survey as the rats bred up towards the original levels.

In general, they found, the rat population of a given block will remain indefinitely at a given level, and that after partial destruction will in time re-establish itself at that level.

A detailed report of the three-man team's results is published in *Ecology* (April).

Science News Letter, June 12, 1948

Books of the Week

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ABOUT THE KINSEY REPORT: Observations by 11 Experts on "Sexual Behavior in the Human Male"—Donald Porter Geddes and Enid Curie, Eds.—*New American Library,* 166 p., paper, 25 cents. Comments by representatives of various fields of the social sciences.

ASTM MANUAL OF ENGINE TEST METHODS FOR RATING FUELS—*American Society for Testing Materials,* 320 p., illus., $8.00. Valuable reference book for engineers.

ANIMAL BIOLOGY—Michael F. Guyer—*Harper,* 4th ed., 780 p., illus., $4.50. A text which recognizes that the student is interested in recognizing and knowing something about living animals.

BIOLOGY OF PATHOGENIC FUNGI—Walter J. Nickerson, Ed.—*Chronica Botanica,* 236 p., illus., $5.00. Dealing with the biological background necessary for the solution of practical medical problems.

THE CAVES OF TEXAS—Charles E. Mohr. Ed.—*National Speleological Society,* 137 p., illus., paper, $2.00. Of interest to those who like zoology, geology, photography or just adventure.

THE EARTH AND ITS RESOURCES: A Textbook for Courses in Physical Geography and Earth Science—Vernor C. Finch, Glenn T. Trewartha and M. H. Shearer—*McGaw-Hill,* 2d ed., 584 p., illus., $3.20. Basic to an understanding of the problems of conservation is a knowledge of natural resources. A high-school text.

THE ELECTRON MICROSCOPE: Its Development, Present Performance and Future Possibilities—D. Gabor—*Chemical Publishing Co.,* 164 p., illus., $4.75. A book by a British author intended for the guidance of those who use this microscope. Includes a note on the proton microscope.

HEMORRHAGE—Gregory Schwartzman and others—*New York Academy of Sciences,* 178 p., illus., paper, $3.00. A series of papers resulting from a conference on hemorrhage.

HYDRAULIC RESEARCH IN THE UNITED STATES—Florence L. Bain, Ed.—*National Bureau of Standards,* 199 p., paper, may be obtained without charge by hydraulic laboratories, libraries, accredited hydraulic engineers by requesting direct from the Chief, National Hydraulic Laboratory, National Bureau of Standards, Washington 25, D. C.

INTRODUCTION TO MEDICAL PSYCHOLOGY—L. Erwin Wexberg—*Grune & Stratton,* 171 p., $3.50. Intended, not for psychologists, but for the general physician who needs to understand his patients.

MEDICAL RESEARCH IN WAR—Medical Research Council (British)—*British Information Services,* 455 p., paper, $2.35 (approx.). Reporting a wide variety of researches in civilian as well as military medicine and nutrition.

RADAR: What Radar Is and How It Works—Orrin E. Dunlap, Jr.—*Harper,* rev. ed., 268 p., illus., $3.00. A popularly written account by a vice-president of RCA.

TEXTBOOK OF CHEMISTRY—Albert L. Elder, Ewing C. Scott and Frank A. Kanda—*Harper,* rev. ed., 758 p., illus., $4.50. Intended for those students who intend to become scientists.

UNDERSTANDABLE PSYCHIATRY—Leland E. Hinsie—*Macmillan,* 359 p., $4.50. The author believes that the maintaining or restoring of health requires an intelligent partnership between physician and patient. This book is intended for both partners.

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PHYSICS

New Clue to Cosmic Rays May Solve Many Mysteries

➤ DISCOVERY that primary cosmic rays consist of less than four percent electrons may be an important new clue toward solving several of the mysteries of these powerful rays which bombard the earth from outer space.

Massachusetts Institute of Technology scientists reported the discovery in experiments which included ray-counting flights in a B-29 airplane.

Major component of cosmic radiation is now believed to be protons, the hearts of hydrogen atoms.

The new findings may help explain not only the composition of cosmic rays but also where they come from.

Dr. Bruno Rossi and Robert I. Hulsizer, Jr., conducted the research which was supported in part by the Office of Naval Research.

Science News Letter, June 12, 1948

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ROLLING-PIN is made of an aluminum tube with one end removable so that ice may be packed within for the cold-rolling of dough. This device may be used also for a cocktail shaker.

Science News Letter, June 12, 1948

ELECTRIC-LOUPE, equipped with a comfortable, plastic-covered head band and a light-weight, flexible cord running into the transformer, is designed for watchmakers, toolmakers, engravers and others who need clear, cool light on their work. It plugs into any 110-volt outlet, reducing the current to 7.5 volts.

Science News Letter, June 12, 1948

HOME HEATING equipment utilizes natural gas during mild weather and fuel oil in severely cold weather, an outside thermostat switching automatically from one fuel to the other at a predetermined temperature. A single unit burns both fuels, the oil being vaporized in a shallow pan where it is heated by a small gas burner.

Science News Letter, June 12, 1948

MINIATURE MICROPHONE, about the size of a package of cigarettes and small enough not to hide the face of a speaker at a public meeting, is made possible by designing the magnetic structure as a part of the case. It is claimed to have the sensitivity of the finest broadcasting microphones now in use.

Science News Letter, June 12, 1948

BARRETTE, shown in the picture, is made of flexible plastic in an ingenious one-piece design based on the simple under-and-over, figure-eight princi-

ple. It is a self-locking device that does away with the conventional hook-type, and its contour shape permits it to lie close to the head.

Science News Letter, June 12, 1948

SEARCHLIGHT for Coast Guard cutters, a remote-control device with 32,000,000 candlepower, uses a 900-watt mercury lamp no longer than a kitchen match. Control panels, each with handwheels for traversing or elevating the searchlight, are placed at various points on the vessel, and can be operated by one man.

Science News Letter, June 12, 1948

CONFIDENTIAL RECORDING system consists of a plastic tracking disk which, when used with a machine that magnetically records on thin paper or plastic records, produces a voice unintelligible to anyone who plays it back unless he has an identical tracking disk of the same code. Each purchaser has a set of identical disks and no others are made exactly the same.

Science News Letter, June 12, 1948

BACKING MATERIAL for floor rugs comes as a white liquid rubber but dries in an hour to form a tough, transparent film which prevents rugs from slipping when walked on. Treated rugs are still washable, and the material does not come off on the floor. It will be available in pint containers for home use.

Science News Letter, June 12, 1948

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Question Box

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ENTOMOLOGY
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MEDICINE-ZOOLOGY
What advantages do shrews have for medical research? p. 373.

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What is the latest evidence regarding guides to bird migration? p. 373.

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Photographs: Cover, p.373, Fremont Davis; p. 371, The Warner & Swasey Co.; p. 374, FAO-Dr. Dale Jenkins; p. 375, Westinghouse Electric Corp.; p. 378, p. 379, Du Pont Co.

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